Conway Streetlights
Improving Street Lighting & Save $
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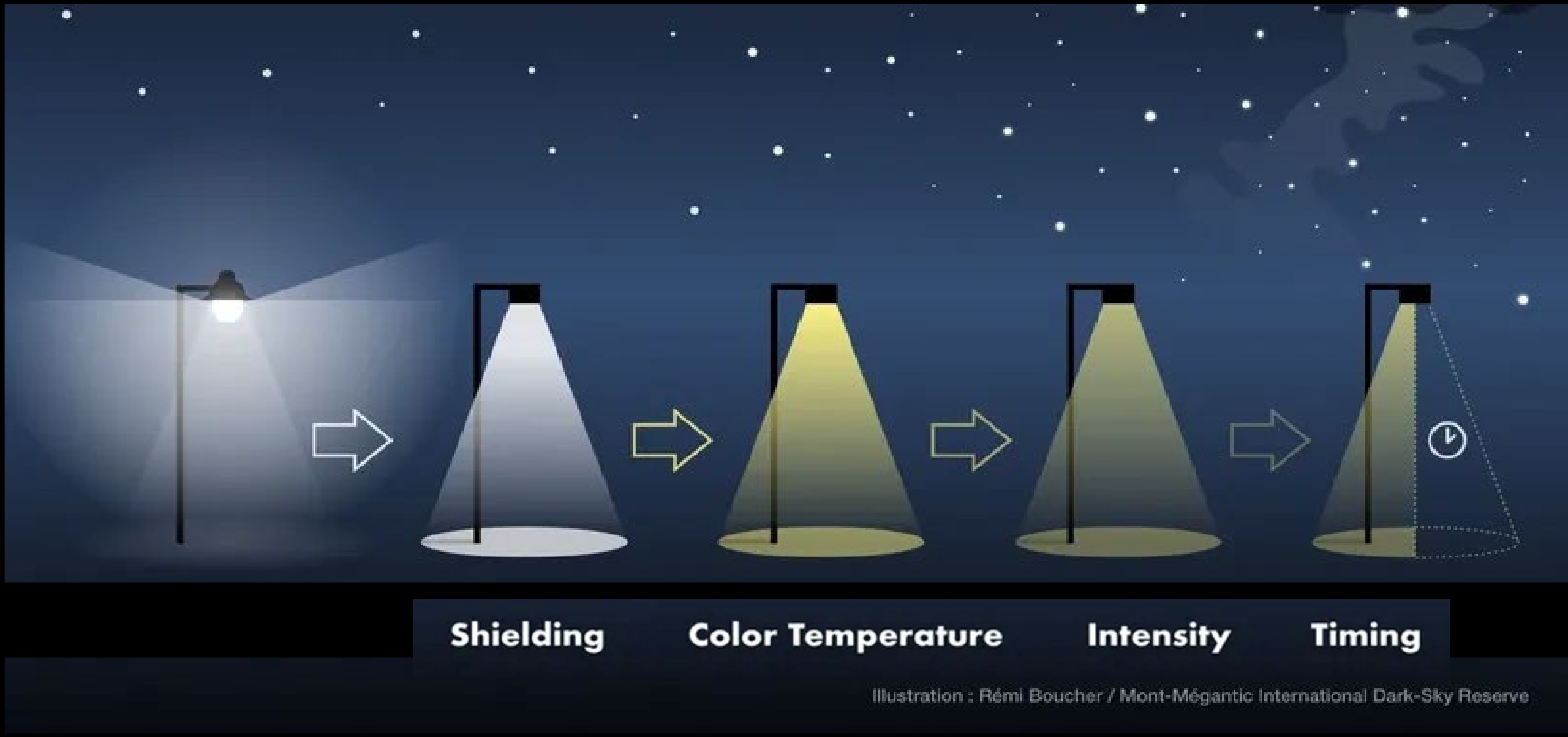
Outline

- Introduction
- Goals:
  - Improve quality of Conway's streetlights (dark skies)
  - Save energy and money
- Existing Conditions
- Status
- Q & A

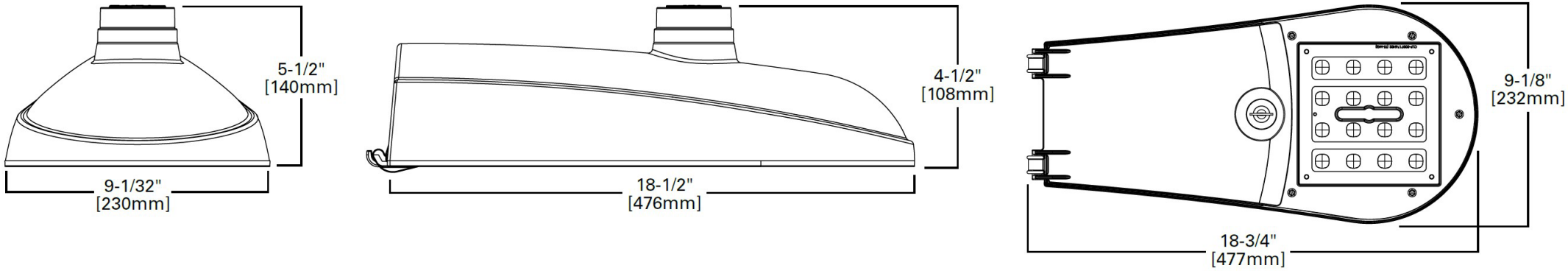
How Streetlights impact night skies (and bedroom windows)

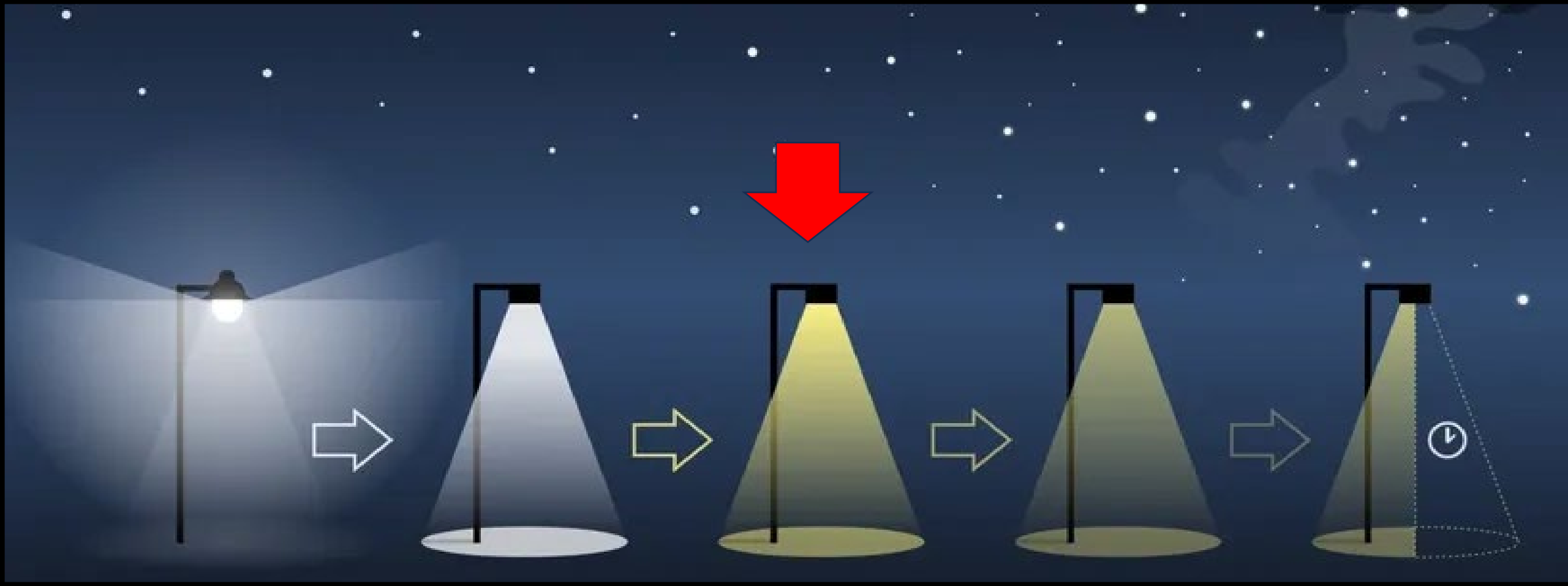
Methods to Improve Streetlight Design – Saving money and electricity



Shelburne Falls has purchased these fixtures (Cooper)

Dimensional Details





Shielding Color Temperature Intensity Timing

Illustration : Rémi Boucher / Mont-Mégantic International Dark-Sky Reserve

Dawn

Noon

Dusk

2200K 2700K 3000K 4000K 5000K 6500K 5000K 4000K 3000K 2700K 2200K

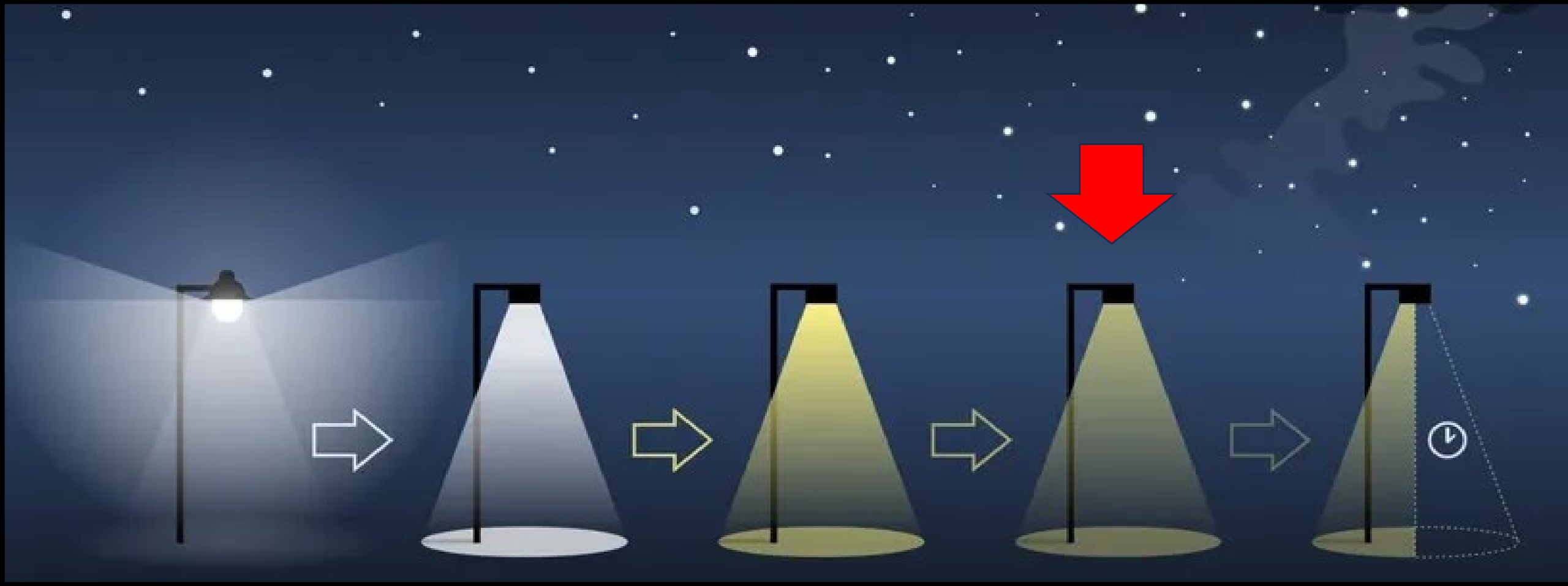


Illustration : Rémi Boucher / Mont-Mégantic International Dark-Sky Reserve

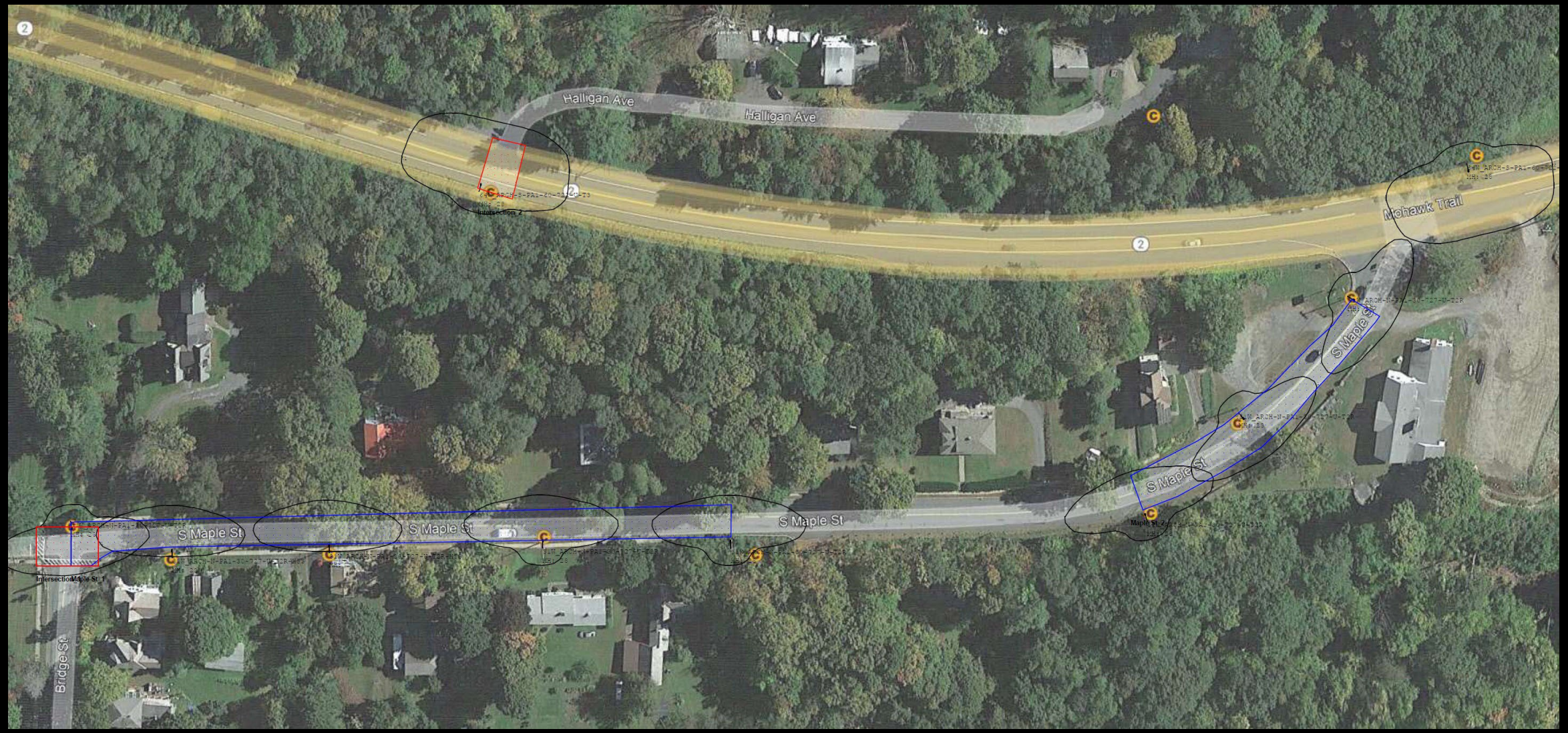
Intensity = Wattage

The Wattage in Shelburne has been designed based on location/use.

Fixtures that Shelburne selected (Cooper nano lighting) allows for a wide selection of wattages: 10, 19, 20, 24, 30, 40, 50 and 60 watt.

The Cooper Fixtures produces 164 lumens per watt, efficient use of watts.

Real Term Energy Photometric Design determines wattage and light patterns based on actual light fixture locations.



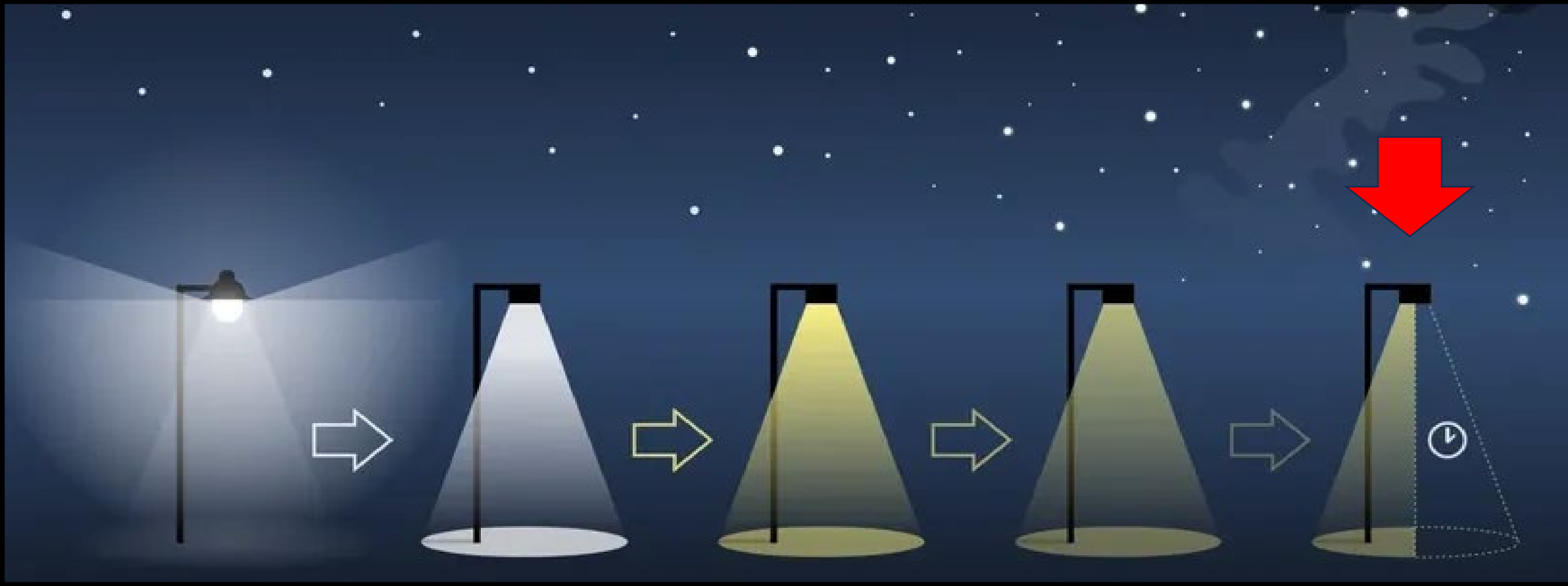
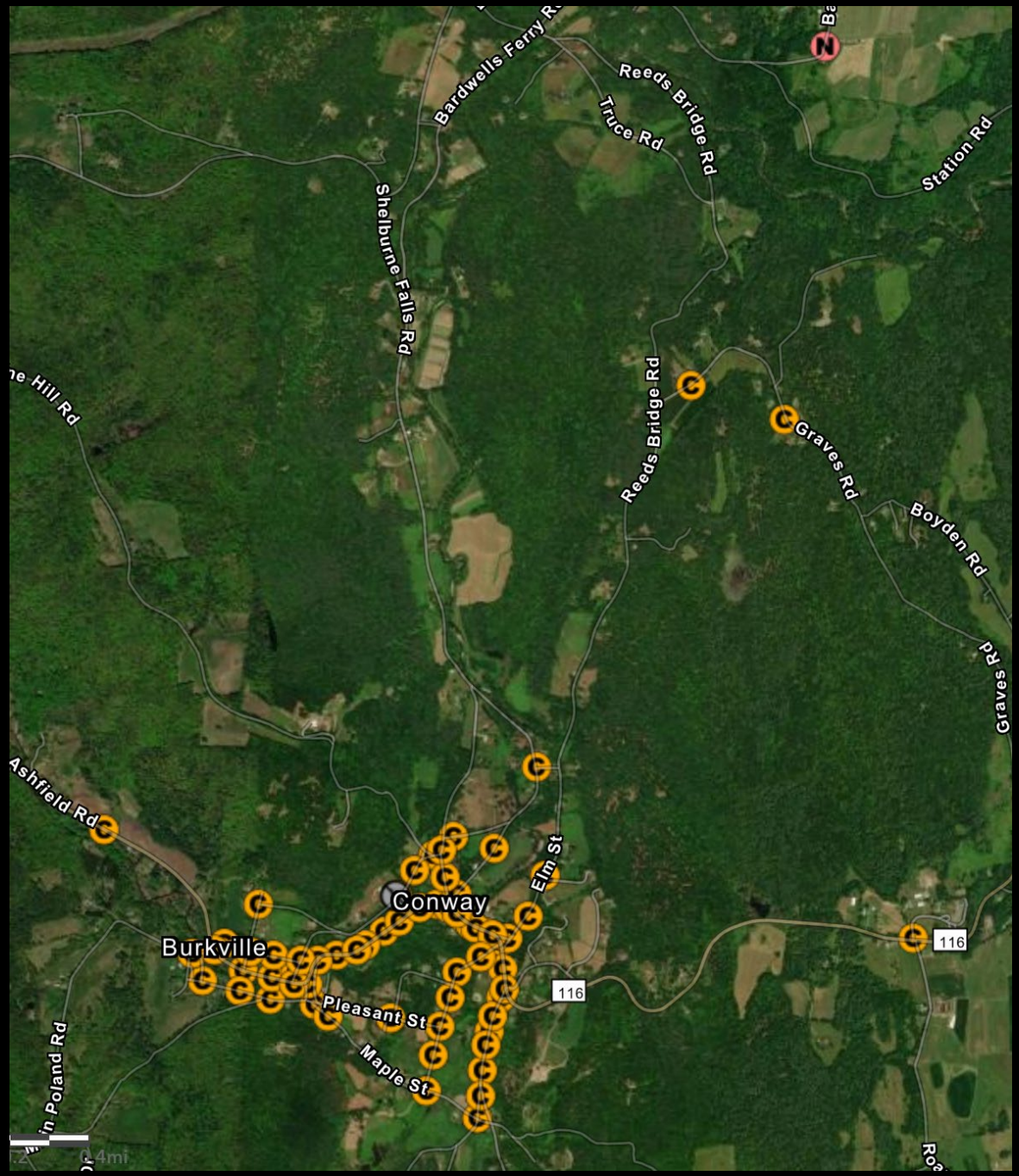


Illustration : Rémi Boucher / Mont-Mégantic International Dark-Sky Reserve

Existing Streetlights

- 67 Streetlights in Conway
- Mix of Eversource HPS & LEDs
- Conway pays:
  - Annual energy fee
  - Monthly rental fee per light fixture
- ~ $9,000 / yr (2024 dollars)



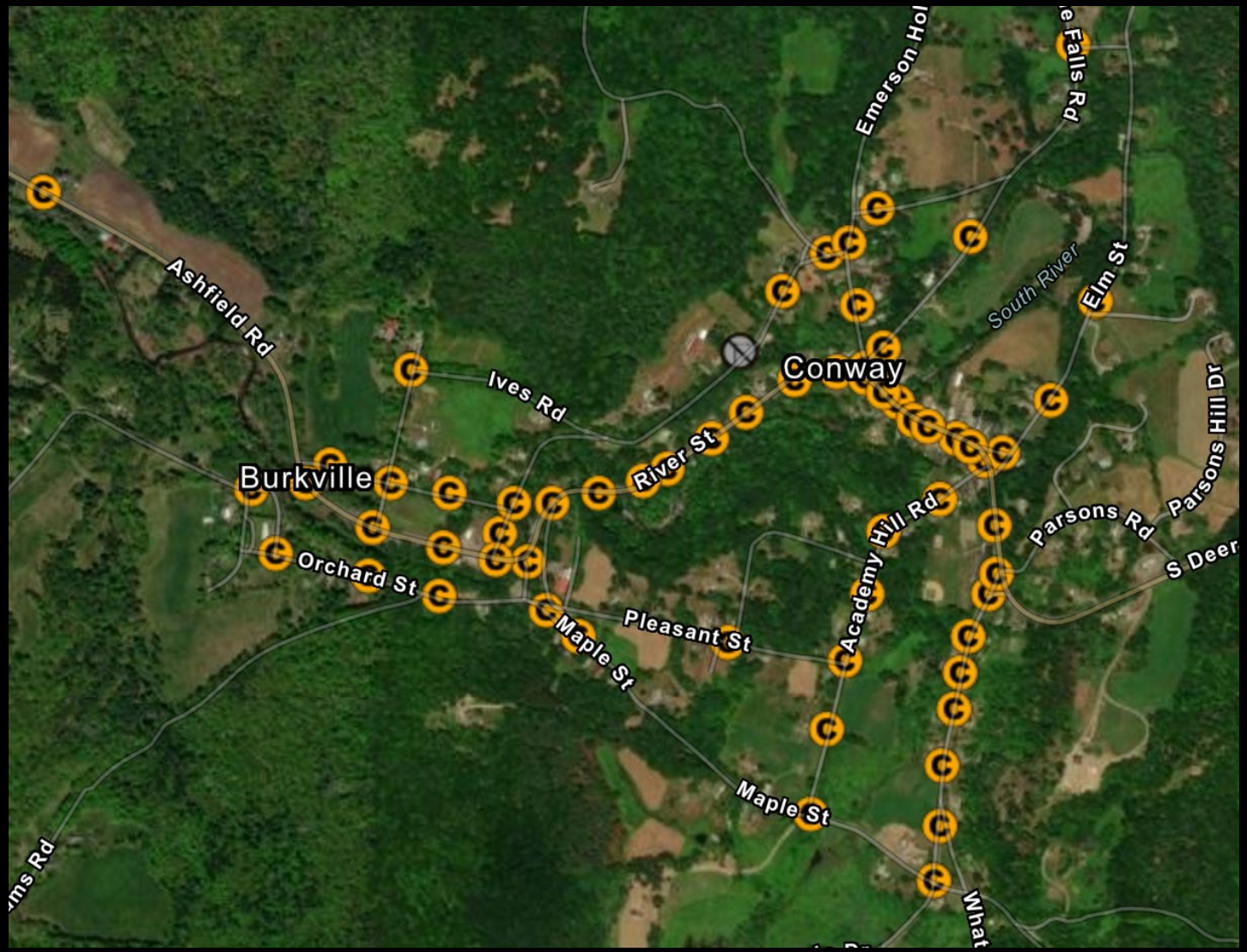
What we've done

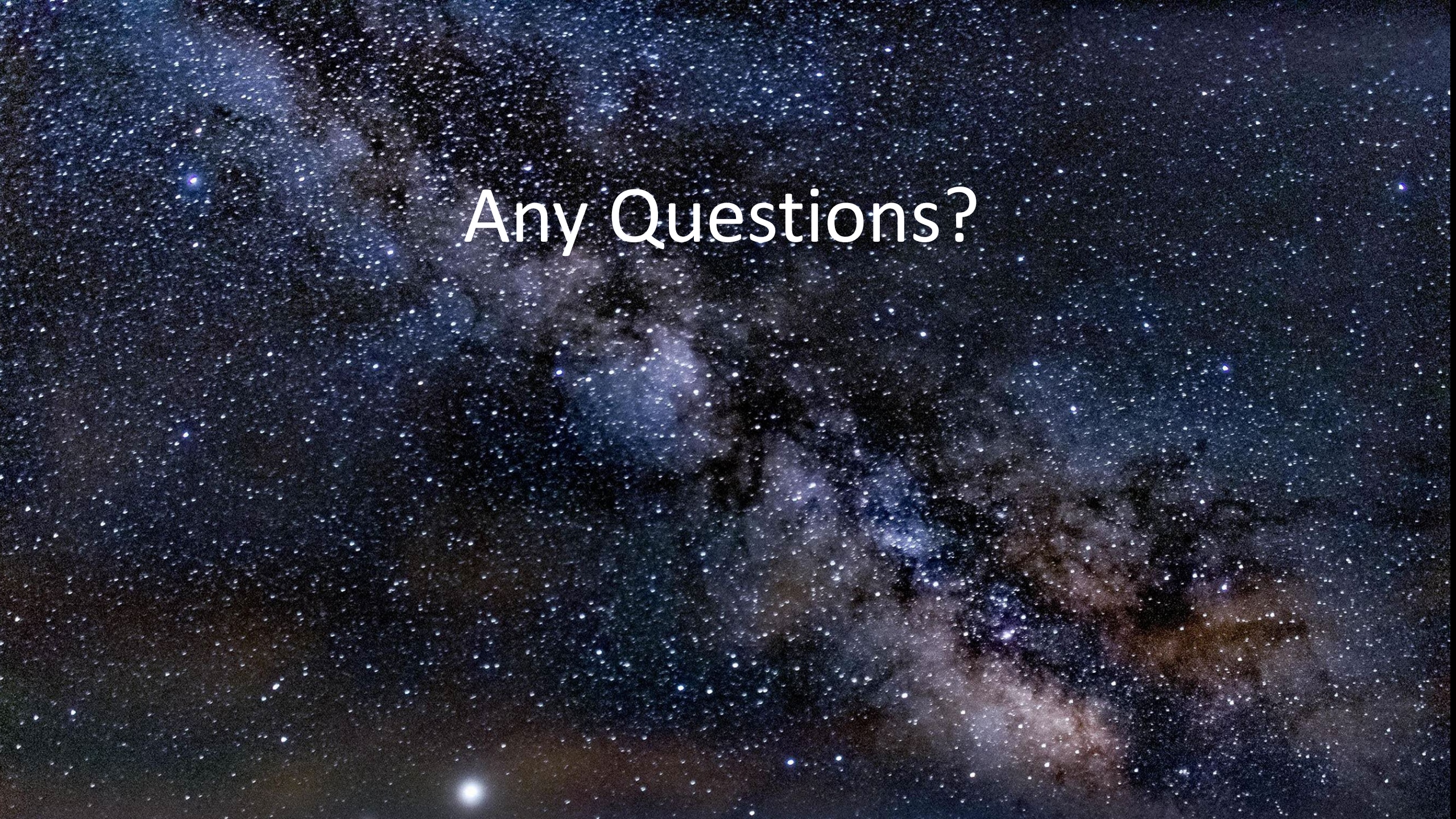
- Hired consultant to do streetlight audit & make recommendations.
- Reviewed audit and looked at all streetlights in town.
- Identified potential savings through reduction of number of streetlights.
- Determined LED lights Eversource provides will not meet our goals.
- Decided to pursue state grant to purchase LEDs that WILL meet our goals.

Next Steps

- We will apply for a Green Communities Grant with the help of FRCOG for up to $50,000 which could cut any payback time.
- We would open the maintenance to local contractors via bid.
- Final lighting design based for each location will be based on recommendations from consultant (RTE).
- Shelburne Falls selected 24 watt, 2200 Kelvin lights, which are more “people and wildlife friendly” and MA dark skies compliant.
- Town to provide list of lights to remain prior to design.

Closer Look at Conway's Streetlights




Any Questions?

2022 Eversource Fees
Existing (HPS) vs. Potential LED

HPS Fixture	Lumens	Monthly Rental	Annual Rental	Annual Energy*	Annual Total	LED Fixture	Lumens	Monthly Rental	Annual Rental	Annual Energy*	Annual Total
50 HPS	4,000	$ 6.66	$ 79.92	$ 35.64	115.56	36 LED	3,855	$ 8.48	$ 101.76	$ 21.75	$ 123.51
70 HPS	6,300	$ 7.01	$ 84.12	$ 50.75	$ 134.87	51 LED	4,936	$ 8.63	$ 103.56	$ 30.81	$ 134.37
100 HPS	9,500	$ 7.33	$ 87.96	$ 71.29	$ 159.25	92 LED	7,693	$ 10.93	$ 131.16	$ 55.58	$ 186.74
150 HPS	16,000	$ 8.02	$ 96.24	$ 103.91	$ 200.15	142 LED	15,182	$ 12.51	$ 150.12	$ 86.39	$ 236.51
250 HPS	27,500	$ 9.67	$ 116.04	$ 187.88	$ 303.92	220 LED	23,104	$ 14.94	$ 179.28	$ 132.91	$ 312.19
400 HPS	50,000	$ 11.61	$ 139.32	$ 285.14	$ 424.46						
1000 HPS	140,000	$ 21.45	$ 257.40	$ 666.35	$ 923.75						
50 MV	4,000	$ 5.50	$ 66.00	$ 71.29	$ 137.29						

* 2022 Rates assumes Conway's supply rate of 1.02920 cents per kWh

34 - 50W HPS @ $115.56 = $3,929.04
24 - 70W HPS @ $134.87 = $3,236.88
6 - 100W HPS @ $159.25 = $955.50
1 - 150W HPS @ $200.15 = $200.15
2 - 50W MV @ 137.29 = $274.58
$8,596.15

The Stand-Alone LED Dimming Solution

No Wireless Network Required

Multiple Options Available:

- Standard version: Start dimming at 10pm, Midnight or 2am, at 30%, 50% or 70%
- Or, dim from Dusk to Dawn at 10% - 90% dimming level (Constant Dim version)

How do the two different Proposals Compare?

	Current	Eversource	Proposed
Lights	98 (104)	98 (104)	93
Watts	70	30	24 (+ dimmed 7 hrs)
Color	~ 2200K	3000K	2200K
Glare	low	high	low
Project cost	0	0	$68,223
Annual cost	$15,000	$10,000	$3610
Annual savings	$-5,000	0	$6,390
Years to payback	0	0	10.7 years

How the project money is spent

$9,022 To RTE Energy Solutions for GIS mapping, bids for light companies, photometric design, and Industrial Grade Audit of all streetlights. This was paid for out of ARPA grant funds.

Upcoming Expenses:

Utility Acquisition Cost of fixtures from Eversource	$14,500
LED Lighting upgrade Project Cost	$50,491 *
Dimulators	$3,232
Total Project	$68,223
Incentives from MassSave/Eversource (after completion)	$ -5,406
Total Cost with incentives	$62,817
Potential for Green Communities Grant	up to $ -50,000

*Includes a Police Details budget of $4,780 and 10% installation contingency